

**Amendments to the Claims:**

1. (Original) A connection controller, comprising:  
a network topology cache coupled to receive network topology data of a network;  
a packing algorithm coupled to receive a requested traffic pattern of a packet,  
wherein the packing algorithm computes an actual traffic pattern using the network  
topology data and the requested traffic pattern such that the network operates as a strictly  
non-interfering network; and  
a logical network state entity coupled to communicate the actual traffic pattern to  
a source corresponding to the packet.

2. (Currently Amended) The connection controller of claim 1, wherein the  
connection controller calculates a plurality of routing trees for a plurality of InfiniBand  
switches in the network, wherein the connection controller calculates a plurality of  
DLIDs Destination Location Identifiers (DLID) and a set of forwarding instructions for  
each of the plurality of InfiniBand switches, wherein each of the plurality of DLIDs  
corresponds to one of the plurality of routing trees and one of a plurality of destinations  
in the network, and wherein the connection controller populates a forwarding table of  
each of the plurality of InfiniBand switches with the plurality of DLIDs and the set of  
forwarding instructions.

3. (Currently Amended) The connection controller of claim 1, wherein  
computing an actual traffic pattern comprises executing a rearrangement algorithm and  
assigning one of a plurality of DLIDs Destination Location Identifiers (DLID) to the  
packet such that the network operates as a strictly non-interfering network.

4. (Currently Amended) The connection controller of claim 3, wherein the packet  
follows a path through at least a portion of a plurality of InfiniBand switches in the  
network, and wherein each of the portion of the plurality of InfiniBand switches forwards  
the packet according to the one of the plurality of DLIDs assigned to the packet such that  
the network operates as a strictly non-interfering network.

5. (Currently Amended) The connection controller of claim 4, wherein each of the portion of the plurality of **InfiniBand** switches looks up the one of the plurality of DLIDs assigned to the packet in a forwarding table at each of the portion of the plurality of **InfiniBand** switches.

6. (Currently Amended) The connection controller of claim 4, wherein each of the portion of the plurality of **InfiniBand** switches forwards the packet in accordance with the one of the plurality of DLIDs assigned to the packet as found in a forwarding table at each the portion of the plurality of **InfiniBand** switches.

7. (Original) The connection controller of claim 1, wherein the network is a Clos network.

8. (Currently Amended) A connection controller comprising a computer-readable medium containing computer instructions for instructing a processor to perform a method of populating a forwarding table, the instructions comprising:

calculating a plurality of routing trees for a plurality of InfiniBand switches in a network;

calculating a plurality of DLIDs Destination Location Identifiers (DLID) and a set of forwarding instructions for each of the plurality of **InfiniBand** switches, wherein each of the plurality of DLIDs corresponds to one of the plurality of routing trees and one of a plurality of end nodesand wherein the forwarding instructions create paths appropriate to make the network operate as a strictly non-interfering network; and

populating the forwarding table of each of the plurality of **InfiniBand** switches in the network with the plurality of DLIDs and the set of forwarding instructions.

9. (Original) The connection controller of claim 8, wherein the network is a Clos network.

10. (Original) The connection controller of claim 8, wherein each of the plurality of end nodes comprises a destination, and wherein the destination is identified by a BaseLID.

11. (Original) The connection controller of claim 8, wherein calculating the plurality of routing trees comprises for each spine node in the network, calculating a shortest path from the spine node to each of the plurality of end nodes.

12. (Currently Amended) The connection controller of claim 8, wherein each of the plurality of routing trees comprises at least a portion of the plurality of InfiniBand switches and corresponding plurality of links that form a shortest path from one of the plurality of end nodes to a spine node of the network.

13. (Currently Amended) A connection controller comprising a computer-readable medium containing computer instructions for instructing a processor to perform a method of forwarding a packet, wherein the packet is created at a source and is addressed to a destination within a network, the instructions comprising:

executing a rearrangement algorithm for the network;  
assigning one of a plurality of DLIDs Destination Location Identifiers (DLID) to the packet; and

the packet following a path through at least a portion of a plurality of InfiniBand switches from the source to the destination, wherein each of the portion of the plurality of InfiniBand switches forward the packet according to the one of the plurality of DLIDs assigned to the packet and wherein the network operates as a strictly non-interfering network.

14. (Canceled)

15. (Original) The connection controller of claim 13, wherein the network is a Clos network.

16. (Currently Amended) The connection controller of claim 13, wherein the packet following the path comprises looking up the one of the plurality of DLIDs assigned to the packet in a forwarding table at each of the portion of the plurality of **InfiniBand** switches along the path from the source to the destination.

17. (Currently Amended) The connection controller of claim 13, wherein the packet following the path comprises each of the portion of the plurality of **InfiniBand** switches forwarding the packet in accordance with the one of the plurality of DLIDs assigned to the packet as found in a forwarding table at each the portion of the plurality of **InfiniBand** switches.